

44
Page 19, line 18, insert --no-- before "application";
line 19, after "direction" insert --, the state is
idle.--; and
line 20, after "message" insert --from a client--.

Page 21, line 14, change "allocation" to --available--.

Page 23, line 13, change "72a and 72b" (first occurrence)
to --73a and 73b--.

Page 28, line 8, change "Mi" (first occurrence) to --Mi+1--

Page 31, line 8, change "a" to --an--.

IN THE CLAIMS

Re-write claims 1, 5, 6, 15, 17, 19, 20, 24 and 25 as follows:

1. (Amended) A hybrid access system for [connecting]
communication with at least a single data processor [with]
in a network, said system comprising:

a local area network [(LAN) system] which includes a
shared medium;

a hybrid system manager [connected to said LAN system]
in communication with said local area network for
transmitting information over said shared medium and for
interactively handling transfers of information thereover in
accordance with a high speed downstream channel protocol and
transfers of lower speed return information in accordance
with an upstream channel protocol;

a downstream router [connected to said LAN system] in communication with said local area network for transmitting information over said shared medium;

d
x
~~an upstream router [connected to said LAN system] in communication with said local area network for receiving information, said upstream router including a Hybridware server,~~

a broadcast unit connected to said downstream router, said broadcast unit being capable of point-to-multipoint broadcast links on said local area network;

B
D
d
d
a downstream channel [connected to] in communication with said broadcast unit for high speed transmission [on a first medium on said high speed downstream channel] said single data processor to at least a single data processor in communication with said shared medium;

i
an independent upstream channel [connected to] in communication with said upstream router, for transmission of information from said data processor [which operates] at a lower speed than transmission of information on said downstream channel;

at least a single remote link adapter [connected to] associated with said data processor and being in communication with said upstream and downstream channels; and

[a corresponding] at least a single client data processor [connected to] in communication with said remote link adapter.

B2
B3b
5. (Amended) The hybrid access system according to claim 1, wherein said [LAN system] local area network includes a

d *B2* [LAN] switch and said at least one of a downstream router and an upstream router.

said

T Claim 6, line 3, change "or" to -and-.

7 15. (Amended). [A] In a wide area network that includes a host server, a plurality of remote clients, a headend facility, a high speed interface that connects said headend facility with said host server, and a high speed link for transferring downstream data packets, a method of providing high speed remote access [of a wide area network] from any of a plurality of client processors each connected to said wide area network ~~asymmetric [hybrid]~~ network including high-speed downstream and lower-speed upstream channels controlled by a hybrid system manager and a router [server], said method including the steps of:

B3 *Bd* said downstream channel
providing a downstream channel that is shared by said
plurality of remote clients,

providing at least one independent upstream channel
that enables at least one of said remote clients to transmit
lower speed return data packets to said host server,

issuing an upstream channel authorization request by a lower speed channel for an upstream data channel currently used by a particular client data processor,

conducting login communications between the router [server] and the system manager,

verifying authorized user status at the system manager [level],

authorizing specific upstream channel use by high speed downstream channel message, and

B3
sending upstream data over an allocated lower speed upstream channel of the asymmetric [hybrid access] network.

8
17. In a full-duplex asymmetric network communication system for transferring information between a host server and a plurality of remote clients over a shared medium and wherein said remote clients include respective remote link adapters for receiving high speed downstream information from said host server over said shared medium and for transmitting lower speed return information over an upstream channel that is independent of ^{the downstream channel} said downstream channel, and wherein said network communication system includes a hybrid access system for providing interactive network sessions in downstream and upstream communication channels, a [A] method of transmitting data from an upstream transmit queue in an upstream transmitter node to a selected receiver node located at a receiving end, said method comprising the steps of:

DH
D
D
transmitting selected amounts of packet data from ^a a first transmit queue in a first node to a second node wherein said second node includes a ^{a second transmit queue} for transmitting acknowledgments to a receiver node,

generating acknowledgments of packet data received by said second node,

d
eliminating from the ^{second} transmit queue of the second node packet data acknowledgments which are redundant of other packet data acknowledgments in said second transmit queue, and

34 filling open transmit queue spaces with additional packet data.

9
19. (Amended) In a full-duplex asymmetric network communication system for transferring information between a host server and a plurality of remote clients over a shared medium and wherein said remote clients include respective remote link adapters for receiving high speed downstream information from said host server over said shared medium and for transmitting lower speed return information over an upstream channel that is independent of the downstream channel, and wherein said network communication system includes a hybrid access system for providing an interactive network session in downstream and upstream communication channels, a [A] method of dynamically setting remote link adapter power [level] levels in [a] said hybrid access system, comprising the steps of:

transmitting successive indications to a hybrid upstream router at selected different power levels,

confirming receipt of a [first power level indication] selected one of said indications,

and

setting [the] a level of future transmissions to a power level associated with [confirmation of receipt] the selected indication.

10
20. (Amended) In a full-duplex asymmetric network communication system for transferring information from a host server and a plurality of remote clients over a shared medium and wherein said remote clients include respective remote link adapters for receiving high speed downstream information from said host server over said

shared medium and for transmitting lower speed return information over an upstream channel that is independent of said downstream channel, and wherein said network communication system includes a hybrid access system for providing an interactive network ^{SESSION} sessions in downstream and upstream communication channels, a [A] method of packet suppression in communication between first and second nodes in said communication system having respective first and second transmit and receive queues, in which information packets having headers are transmitted from said first node to said second node, comprising the steps of:

loading [the transmit queue of said first node with] a first information packet into the transmit queue of said first node;

loading a second information packet into [a] the transmit queue of said first node;

checking the headers of said first and second information packets, and responsive to redundancy between the first and second headers said first and second headers, suppressing one of said first and second information packets [, if the headers are the same].

11
24. (Amended) In a full-duplex asymmetric network communication system for transferring information from a host server and a plurality of remote clients over a shared medium and wherein said remote clients include respective remote link adapters for receiving high speed downstream information from said host server over said shared medium and for transmitting lower speed return information over an upstream channel that is independent of said downstream channel, and wherein said network communication system includes a hybrid access system for

simultaneously controlling the downstream and upstream in interactive network sessions, a [A] method of dynamically ✓
responding to detected quality levels in a communication channel, comprising the steps of:

B6
detecting a quality characteristic with respect to a selected communication channel from a selected group of quality characteristics each of which is defined by quantitative levels,

determining whether the quantitative level of the detected quality characteristic deviates with respect to a predefined norm, and

dynamically switching to another communication channel, if sufficient deviation is determined.

12
25. (Amended) The method according to claim [25] 24 wherein
said group of quality characteristics includes time from
last operability indication, signal to noise ratio, and
error frequency. 11

C
Insert new claims 26-74, as follows:

13
B1
--26. A network communication system including a server,
a plurality of remote clients and an information distribution facility for distributing information signals to said remote clients, said communication system comprising:

B1
41
a downstream channel that is shared by said plurality of remote clients so as to enable said plurality of remote

clients to receive high speed data packets from said server over a shared medium,

at least one independent upstream channel for enabling at least one of said remote clients to transmit lower speed return data packets to said server,

a hybrid access system including a network manager for interactively controlling both transfers of data packets from said server to said remote clients via broadcasts over said shared downstream channel in accordance with a high speed downstream channel protocol and transfers of lower speed return data packets from said remote clients to said host server over said independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said server and said plurality of remote clients, and

said hybrid access system further includes a server interface that enables communication with said server, a downstream router for enabling transmission of high speed data packets to said remote clients over said shared media and an upstream router for receiving return data packets from said remote clients.

14. The
27. A network communication system as recited in claim 26 wherein said plurality of remote clients include remote link adapters and said downstream router couples said shared medium to establish a physical connection with said downstream channel and said upstream router couples said remote link adapters to establish a physical connection with said upstream channel.

15. The
28. A network communication system as recited in claim 26 wherein said independent upstream channel lies in a

communication medium that is different from said downstream channel.

16. The
~~29.~~ A network communication system as recited in claim ~~26~~¹³ wherein said shared medium comprises a hybrid fiber coaxial cable and said remote clients physically connect in parallel to said hybrid fiber coaxial cable to receive simultaneously broadcasted data packets whereby to facilitate efficient sharing of resources at said distribution facility by said remote clients.

17. The
~~30.~~ A network communication system as recited in claim ~~29~~¹⁶ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client to said information distribution facility which, in turn, routes said data packets to said server.

18. The
~~31.~~ A network communication system as recited in claim ~~30~~¹⁷ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client directly to said server.

19. The
~~32.~~ A network communication system as recited in claim ~~30~~¹⁷ wherein said at least one independent upstream channel comprises an independent lower speed channel transmitted over said hybrid fiber coaxial cable, and said upstream router receives said data packets transmitted by said at least one remote client over said independent upstream channel and routes said data packets to said server.

20. The
~~33.~~ A network communication system as recited in claim ~~26~~¹³ wherein said distribution facility comprises a cellular broadcast facility, said shared medium comprises radio frequency broadcasts from said cellular broadcast facility, and said remote clients each comprise radio frequency

receivers for substantially simultaneously receiving data packets transmitted over said shared medium so as to provide sharing of resources at said distribution facility by said remote clients.

d 21. ²⁰ ~~24.~~ ^{the} A network communication system as recited in claim ³³ ~~33~~ wherein said at least one independent upstream channel comprises a lower speed cellular return channel routed through said distribution facility.

d 22. ¹³ ~~25.~~ ^{the} A network communication system as recited in claim ²⁶ ~~26~~ wherein said distribution facility comprises a satellite, said shared medium comprises a direct satellite broadcast and said remote clients includes a receiver for substantially simultaneously receiving information signals from said broadcast so as to provide sharing of broadcast resources among said remote clients.

d 23. ²² ~~36.~~ ^{the} A network communication system as recited in claim ³⁵ ~~35~~ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client directly to said server.

d 24. ¹³ ~~27.~~ ^{the} A network communication system as recited in claim ²⁶ ~~26~~ wherein each of said upstream and downstream channels lies in a communication medium selected from one of a CATV distribution network, a cell site, a radio transmitter station, a television transmitter station, a hybrid fiber coaxial cable network, an over-the-air wireless network, a direct broadcast satellite communication network and a telephone network.

d 25. ¹³ ~~38.~~ ^{the} A network communication system as recited in claim ²⁶ ~~26~~ wherein said distribution facility comprises a television broadcast facility, said shared medium comprises radio frequency broadcasts from said television broadcast

facility, and said remote clients include radio frequency receivers for substantially simultaneously receiving data packets transmitted over said shared medium whereby to provide sharing of resources located at said distribution facility.

26. The
~~39.~~ A network communication system as recited in claim ~~38~~²⁵ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client to said information distribution facility which, in turn, routes said data packets to said server.

27. The
~~40.~~ A network communication system as recited in claim ~~39~~²⁶ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client directly to said server.

28. The
~~41.~~ A network communication system as recited in claim ~~40~~¹³ wherein said distribution facility comprises a radio broadcast facility, said shared medium comprises radio frequency broadcasts from said radio broadcast facility, and said remote clients include radio frequency receivers for substantially simultaneously receiving data packets transmitted over said shared medium whereby to provide sharing of resources located at said distribution facility.

29. The
~~42.~~ A network communication system as recited in claim ~~41~~²⁸ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client to said information distribution facility which, in turn, routes said data packets to said server.

30. The
~~43.~~ A network communication system as recited in claim ~~42~~²⁹ wherein said at least one independent upstream channel

comprises a PSTN network that routes data packets transmitted by said at least one remote client directly to said server.

d 31. ~~The~~ ¹⁷ 44. A network communication system as recited in claim ~~30~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel so as to provide more effective utilization of channel bandwidth according to demand by respective remote clients communicating with said shared medium.

d 32. ~~The~~ ¹⁹ 45. A network communication system as recited in claim ~~32~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel so as to provide more effective utilization of channel bandwidth according to demand by respective remote clients communicating with said shared medium.

d 33. ~~The~~ ²⁶ 46. A network communication system as recited in claim ~~39~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel whereby to provide more effective utilization of channel bandwidth according to demand by respective remote clients communicating with said shared medium.

d 34. ~~The~~ ²⁹ 47. A network communication system as recited in claim ~~42~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel so as to provide more effective utilization of channel bandwidth according to

d demand by respective remote clients communicating with said shared medium.

35. the
d 35. A network communication system as recited in claim ²⁴ ~~37~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel so as to provide more effective utilization of channel bandwidth according to demand by respective remote clients communicating with said shared medium.

36. the
d 36. A network communication system as recited in claim ¹³ ~~26~~ wherein said distribution facility comprises a television broadcast facility, said shared medium comprises radio frequency broadcasts from said television broadcast facility, and said remote clients include radio frequency receivers for substantially simultaneously receiving data packets transmitted over said shared medium so as to provide sharing of resources located at said distribution facility.

37. the
d 37. A network communication system as recited in claim ³⁶ ~~49~~ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client to said information distribution facility which, in turn, routes said data packets to said server.

38. the
d 38. A network communication system as recited in claim ³⁶ ~~49~~ wherein said at least one independent upstream channel comprises a PSTN network that routes data packets transmitted by said at least one remote client directly to said server.

39
d 39. In a split-channel asymmetric network communication system including a host server, a plurality of remote clients and a headend facility for distributing information

signals to said remote clients, a full-duplex packet delivery system comprising:

a downstream channel that is shared by said plurality of remote clients for receiving high speed data packets from said host server over a shared medium,

at least one independent upstream channel that enables at least one of said remote clients to transmit lower speed return data packets to said host server,

a hybrid access system including a network manager for controlling transfers of data packets from said host server to said remote clients via broadcasts over said shared medium in accordance with a high speed downstream channel protocol and for controlling transfers of lower speed return data packets from said at least one remote client to said host server over said independent upstream channel in accordance with an upstream channel protocol and in accordance with scheduling information transmitted on the downstream channel, said network manager being further operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients,

said hybrid access system further including a backbone interface that enables connection with said host server, a downstream router for enabling transmission of high speed data packets to said remote clients over said shared ^{medium} and an upstream router for receiving return data packets from said at least one of said remote clients,

whereby said network communication system provides full-duplex interactive asymmetric communication in a session between said host server and said plurality of remote clients over ^{said shared medium} ~~a shared communication medium~~.

40

39

53. The invention as recited in claim ~~52~~ wherein said network manager schedules assignment of upstream channels for use by said at least one remote client in accordance with at least one of an upstream channel availability signal, a priority status signal, a shared/dedicated channel request signal, or a service level authorization signal.

41

39

54. The invention as recited in claim ~~52~~ wherein communication media for each of said downstream and said upstream channels is selected from at least one of a CATV distribution network, a cell site, a television transmitter station, a hybrid fiber coaxial cable network, an over-the-air wireless network, a direct broadcast satellite communication network and a telephone network.

42

41

55. The invention as recited in claim ~~54~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel.

43

41

56. A network communication system including a host, a plurality of remote users and an information distribution facility for distributing information signals to said remote users, said system comprising:

a downstream channel shared by said remote users for receiving digital information signals transmitted from the host over a shared medium at a high speed,

at least one independent upstream channel for permitting the remote users to transmit digital information to said host at a lower speed than the high speed on the downstream channel,

a hybrid access system for interactively controlling transfers of digital information from said host to the

remote users via broadcasts over said shared medium in accordance with a high speed downstream channel protocol and for controlling transfers of digital information from said remote clients to said host at said lower speed over said at least one independent upstream channel in accordance with an upstream channel protocol, said hybrid access system being operable to provide full-duplex point-to-multipoint communication between said host and said remote users, and

A
B
d

said hybrid access system further including an interface for connecting with the host, a downstream router for enabling transmission of high speed information to said remote users over said shared medium and an upstream router for receiving return information from said remote users.

44. ⁴⁴ ~~57.~~ ⁴³ ~~56~~ The ~~57.~~ A network communication system as recited in claim ~~56~~ wherein communication media for each of said downstream and said upstream channels is selected from one of a CATV distribution network, a cell site, a television transmitter station, a hybrid fiber coaxial cable network, an over-the-air wireless network, a direct broadcast satellite communication network and a telephone network.

45. ⁴⁴ ~~58.~~ ⁴⁴ The ~~58.~~ A network communication system as recited in claim ~~57~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speed and said hybrid access system selectively controls speeds of data transfers on said upstream channel.

46. ~~59.~~ A network communication system including a host server, a plurality of remote clients and a headend facility for distributing data packets to said remote clients, said system comprising:

a downstream channel that is shared by said plurality of remote clients for receiving high speed data packets from said host server over a shared medium,

at least one independent upstream channel that permits said remote clients to transmit lower speed return data packets to said host server,

A
B

a hybrid access system including a network manager for controlling transfers of data packets from said host server to said remote clients via broadcasts over said shared medium in accordance with a high speed downstream channel protocol, and for controlling transfers of lower speed return data packets from said remote clients to said host server over an independent upstream channel located on a physical medium that is different from shared medium of said downstream channel, said upstream communication channel being assigned in accordance with an upstream channel protocol and scheduling information transmitted on the downstream channel, said network manager being further operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients,

C

said hybrid access system further including a backbone interface that enables connection with said host server, a downstream router for enabling transmission of high speed data packets to said remote clients over said shared ~~medium~~ ^{medium} media and an upstream router for receiving return data packets from said remote clients.

47.

60. The network communication system as recited in claim ~~59~~ ⁴⁶ wherein said hybrid access system effects control of assignment of upstream channels to said remote clients in accordance with scheduling information including a dedicated

51

or shared channel request signal, a channel availability signal, a priority status signal or class of service signal.

d 48. *The* 47.
61. A network communication system as recited in claim ~~60~~ wherein communication media for each of said downstream and said upstream channels is selected from one of a CATV distribution network, a cell site, a television transmitter station, a hybrid fiber coaxial cable network, an over-the-air wireless network, a direct broadcast satellite communication network and a telephone network.

A & 49. *The* 48.
62. A network communication system as recited in claim ~~61~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speeds and said hybrid access system selectively controls speed of data transfers on said upstream channel.

B 50.
63. A client-server system including a split-channel asymmetric network for enabling multiple users to share information, said system comprising:

a host server,

a plurality of remote users,

a distribution facility for distributing information signals to said remote users,

a downstream channel that is shared by said plurality of remote users so as to enable said plurality of users to receive high speed data packets from said host server over a shared medium,

at least one upstream channel that is independent of said downstream channel for enabling said remote users to

transmit return data packets to said host server at a lower speed than a data packet rate transmitted in said downstream channel,

A
B

a hybrid access system for interactively controlling both transfers of data packets from said host server to said remote users via broadcasts over said shared medium in accordance with a high speed downstream channel protocol and transfers of lower speed return data packets from said remote users to said host server over an independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote users in an interactive session wherein transmission of upstream information is controlled, in part, by control information transmitted over said downstream channel, and

said hybrid access system further including a host interface that enables communication with said host server, a downstream router for enabling transmission of high speed data packets to said remote users over said shared medium and an upstream router for receiving return data packets from said remote users.

51
64. In combination with a multi-user computer system including at least one host computer and a plurality of remote clients, the improvement comprising:

a packet distribution facility connected with said host computer for distributing data packets from said host computer to said remote clients,

a downstream channel that is shared by said plurality of remote clients so as to enable said plurality of remote clients to receive high speed data packets from said host server over a shared medium,

at least one upstream channel that is independent of said downstream channel for enabling said remote clients to transmit return data packets to said host server at a speed that is lower than a data packet rate transmitted in said downstream channel,

a hybrid access system including a network manager for interactively controlling both transfers of data packets from said host server to said remote clients via broadcasts over said shared medium that communicates with said plurality of remote clients in accordance with a high speed downstream channel protocol and transfers of lower speed return data packets from said remote clients to said host server over said independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients, and

said hybrid access system further including a downstream router for enabling transmission of high speed data packets to said remote clients over said shared medium and an upstream router for receiving return data packets from said remote clients.

52
65. In combination with a CATV broadcast transmission facility including a shared medium downstream channel that is shared by a plurality of remote clients to receive high speed data packets from a host server, the improvement comprising:

respective RLA devices associated with said remote clients that are connected with said shared medium and tuned so as to receive high speed transfers of data packets for conveyance to said remote clients,

at least one independent upstream channel that enables said remote clients to transmit lower speed return data packets to said host server,

a hybrid access system including a network manager for interactively controlling both transfers of information data packets from said host server to said remote clients via broadcasts over said shared medium that communicates with said plurality of remote clients in accordance with a high speed downstream channel protocol and transfers of lower speed return data packets from said remote clients to said host server over said independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients in an interactive session wherein transmission of upstream information is monitored or controlled, in part, by control information transmitted through said downstream channel, and

said hybrid access system further including an interface that enables connection with said host server, a downstream router for enabling transmission of high speed data packets to said remote clients over said shared ^{medium} ~~media~~ and an upstream router for receiving return data packets from said remote clients,

whereby said improvement acts to provide full-duplex interactive asymmetric communication in a session between ^{said host server} ~~said host server and a plurality of remote clients~~ ^{said CATV broadcast} ~~host server and a plurality of remote clients through a CATV transmission facility~~ ^{said shared medium} ~~over a shared communication medium~~.

53. The 52.
66. A network communication system as recited in claim 65
wherein communication media for each of said downstream and
said upstream channels is selected from one of a CATV

distribution network, a cell site, a television transmitter station, a hybrid fiber coaxial cable network, an over-the-air wireless network, a direct broadcast satellite communication network and a telephone network.

54. ~~The~~ ⁵³ ~~56~~ A network communication system as recited in claim ~~56~~ wherein said upstream channel protocol enables operation of said upstream channel at multiple speed and said hybrid access system selectively controls speeds of data transfers on said upstream channel.

55. ~~In combination with a television signal broadcast facility, the improvement comprising:~~

a host computer,

a plurality of remote clients,

a packet distribution facility connected with said host computer for distributing data packets from said host computer to said remote clients,

a downstream channel that is shared by said plurality of remote clients so as to permit said plurality of remote clients to receive high speed data packets from ^{the host server} ~~said host server~~ over a shared medium,

at least one upstream channel that is independent of said downstream channel for enabling said remote clients to transmit return data packets to said host server at a lower speed than a data packet rate transmitted in said downstream channel,

a hybrid access system including a network manager for controlling transfers of data packets from said host server to said remote clients via broadcasts over said shared

medium in accordance with a high speed downstream channel protocol and for receiving transfers of lower speed return data packets from said remote clients to said host server over an independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients, and

1
B

said hybrid access system further including a downstream router for enabling transmission of high speed data packets to said remote clients over said shared medium and an upstream router for receiving return data packets from said remote clients.

56
d
d

69. In combination with a television signal broadcast facility, a network of host computers and a plurality of remote clients, the improvement comprising:

a packet distribution facility connected with said host computer for distributing data packets from said host computer to said remote clients,

a downstream channel that is shared by said plurality of remote clients so as to enable said plurality of remote clients to receive high speed data packets from ^{the host server} ~~said host server~~ over a shared medium,

at least one upstream channel that is independent of said downstream channel for enabling said remote clients to transmit return data packets to said host server at a lower speed than a data packet rate transmitted in said downstream channel,

a hybrid access system including a network manager for controlling both transfers of data packets from said host server to said remote clients via broadcasts over said

shared medium in accordance with a high speed downstream channel protocol and transfers of lower speed return data packets from said remote clients to said host server over an independent upstream channel in accordance with an upstream channel protocol, said network manager being operable to provide full-duplex point-to-multipoint communication between said host server and said plurality of remote clients, and

 said hybrid access system further including a downstream router for enabling transmission of high speed data packets to said remote clients over said shared medium and an upstream router for receiving return data packets from said remote clients.

57
70. In an asymmetric network communication system including a host server and a plurality of remote clients wherein respective remote clients have associated remote link adapters that operate in accordance with predefined downstream and upstream protocols, said system including:

 a headend facility that distributes information signals,

 d
 a downstream channel that is shared by said plurality of remote clients so as to permit said plurality of remote clients to receive ^{high speed} information signals from said host server over a shared medium,

 at least one upstream channel that is independent of said downstream channel to enable at least one of said remote clients to transmit return information signals to said host server at a lower speed than said information signals transmitted over said downstream channel,

a hybrid access system for controlling transfers of information signals transmitted from said host server to said remote clients over said shared medium in accordance with said downstream protocol and for monitoring communication over said independent upstream channels thereby to provide interactive communication between said host server and at least one of said plurality of remote clients over said downstream and upstream communication channels, and

said hybrid access system further including a backbone interface that enables connection with said host server, a downstream router for enabling transmission of high speed information to said remote clients over said shared media,

whereby said asymmetric network communication system provides full-duplex interactive asymmetric communication between ~~said host server~~ and said at least one of said plurality of remote clients in a shared medium environment.

58

71. A packet delivery system for use in an asymmetric network to provide full-duplex communication, said system including a host server and at least one remote client that has a remote link adapter operating in accordance with a high speed downstream and a lower speed upstream protocol, said packet delivery system comprising:

a downstream channel that is shared by said at least one remote client so as to enable said at least one remote client to receive high speed data packets from said host server over a shared medium,

at least one independent upstream channel that enables said remote client to transmit lower speed return data packets to said host server,